SUBJECT INDEX

Acetylcholine
  in brain
    effect of corticosteroids 18
    effect of 5-HT 366
  effect on chick ciliary ganglia 295
  release from C-cells in amphibian sympathetic ganglia 446
Acetylcholine receptors
  in brain 366
  in chick ciliary ganglion neurons
    biophysical properties 295
    molecular biology 294
    pharmacology 293
    regulation during embryonic development 297
Actin, synapsin binding 515
Action potential, mechanism of generation in amphibian sympathetic ganglia 476
Activin-A 289
Activity
  changes in ion concentration in brain 39
  effect on energy parameters in brain 44
A-current, amphibian sympathetic ganglia 459, 463
Adenosine-3′,5′-monophosphate, effect on chick ciliary ganglion 296
Adenosine triphosphate, in brain
  enzymes of glycolytic pathway 48
  effect of hypoglycemia and hypoxia/ischaemia 45, 47
  ion interactions 52, 56
  effect of seizures and spreading depression 44
  synthesis 52, 54
Adhesion molecules, brain inflammation 152
Adrenaline, effect on amphibian sympathetic ganglia 493, 498
α-Adrenergic receptors, in brain, effect of corticosteroids 17
α_2-Adrenergic receptors, in amphibian sympathetic ganglia 493
β-Adrenergic receptors, in brain, effect of corticosteroids 17
Adrenocorticosteroid receptors in brain 3
Aging
  blood–nerve barrier permeability 271
  cortiscosteroid receptors in brain 8
  myelin sheath remodelling 107, 133, 135
  serotonergic system in brain 374
Alaproclate, effect on cognition 373
Albumins, blood–nerve barrier permeability 256
Aldosterone 2
  binding in brain 5
Allografts, fresh nerve 196
  graft ensheathment 215
  graft pretreatment 207
  host immunosuppression 215
  immunobiology 197
Alzheimer's disease, 5-HT and cognition 363, 376
Amino acids, facilitated transport at blood–nerve barrier 258
α-Amino-3-hydroxy-5-methyl-4-osoxazolepropionic acid receptor, effect of corticosteroids 15
Amphetamine
  effect of ascorbate on behavioural effects of 548
  effect on ascorbate release in brain 542, 544
Amphibian sympathetic ganglia
  adrenaline effects 493
  cellular physiology 453
  comparison with mammalian ganglia 450
  monoamine effects 495
  muscarinic excitation 482
  muscarinic inhibition 488
  nicotinic transmission 481
  organization and anatomy 441
  peptide effects 495, 499
  peptidergic excitation 490
Annexins
  formation of a pore or channel 526
  function 526
  localization 525
  mediation of vesicle aggregation and fusion 525
  phosphorylation 525
  structure 524
Antigen presenting cells, nerve allografts 205, 222
Antioxidant, ascorbate 554
4-AP, effect on demyelinated and remyelinated axons 124
Arachidonic acid, modulation of ion channels 175–186
Arginine, blood–nerve barrier transport 261
Arginine vasopressin, effect of corticosteroids on production of 21
Arterial baroreceptors, respiratory-related fluctuations 573, 590
Ascorbate 537
  antipsychotic effects and neuroleptic adjunct 552
  clinical implications 552
  electochemical detection 539
  dopamine interaction 544, 547, 551
  glutamate interaction 542, 549, 551
  neuroprotective effects 554
  oxidative metabolism
    effect of amphetamine 542
    behavioural activation 541
    nigro-thalamo-cortico-neostriato-nigral loop 545
  release in brain 541
  synaptic modulation 547
  uptake and distribution in brain 540
Association cortex, orientation specificity 420, 422
Attention, effect of 5-HT depletion 368
Autism, effects of ascorbate 553
Autonomic effector organ regulation, respiratory oscillations 569
Autonomic ganglia 440
  myelin sheath remodelling 107
Autonomic–respiratory integration, model 597
Avian ciliary ganglion, functional development of parasympathetic neurons 281–322
Axotomy, effect on amphibian sympathetic ganglia 476
Azathioprine, nerve allografts 219, 223

Baroreceptor reflex, respiratory modulation of sympathetic activity 574, 590
B-cells, amphibian sympathetic ganglion 442, 450, 452
  cellular physiology 453–481

Behavioural activation, ascorbate in brain 542
Blood–brain barrier
  brain inflammation 151
    lymphocyte : endothelial cell interactions 152
    role of cytokines 153
  comparisons with blood–nerve barrier 251, 252, 257, 262
Blood–nerve barrier
  comparisons with blood–brain barrier 251, 252, 257, 262
  facilitated and saturable transport 257
  histochemistry 241
  morphology 237
  passive permeability 251
  permeability under pathological conditions and aging 264
  quantitation of permeability and transport 242
Bullfrog, sympathetic ganglion 439–510
Bungarotoxins, effect on chick ciliary ganglion neurons 293

Cadmium, effect on proton-induced current 80
Calcitonin gene-related peptide, effect in amphibian sympathetic ganglia 497, 499
Calcium
  action potential generation in amphibian sympathetic ganglia 476
  activated K^+-channels
    amphibian sympathetic ganglia 459, 460, 478
    chick ciliary ganglion neurons 302, 309, 310
  blood–nerve barrier permeability 254
  in brain 39
    changes during increased activity, hypoglycemia and hypoxia/ischemia 40
    interaction with energy production pathways 49, 56
  ciliary ganglion cell survival 288
  intracellular movements in amphibian sympathetic ganglion 472
  muscarinic excitation in amphibian sympathetic ganglia 486
  effect on proton-induced current 76, 77, 82
  synaptic vesicle exocytosis 512
  synaptotagmin binding 520
Calcium channels
  effect of arachidonic acid 176, 181, 182
  effect of corticosteroids 14
  interaction with proton-gated channel 82
  synaptotagmin binding 519
Calcium channel blockers, effect on proton-induced current 79
Calcium currents
  amphibian sympathetic ganglion 468, 478, 494
  chick ciliary ganglion 300
Calpactin 524, 525
Cardio-inhibitory motoneurones, respiratory modulation 570, 589
Cardio-respiratory oscillator 595
Cardiovascular system, respiratory oscillations 569
Cat, respiratory modulation of sympathetic activity 571
C-cells, amphibian sympathetic ganglia 445, 450, 452
  innervation with B-fibres 448
Cell death, avian ciliary ganglion 287
Chemoreceptor stimulation, respiratory modulation in sympathetic neurones 591
Chick ciliary ganglion, functional development of parasympathetic neurons 281–322
Chloride
  blood–nerve barrier permeability 253
  in brain 39
    changes during increased activity, hypoglycemia and hypoxia/ischemia 40
Chloride channels, effect of arachidonic acid 177, 182
p-Chlorophenylalanine, effect on attention and memory 369
Cholinergic system, brain
  anatomy 364
  effect of corticosteroids 18
  interaction with serotonergic system 366, 373
  manipulation of and cognition 367
  physiology 365
Cholinergic transmission, chick ciliary ganglion 290
Choroid cells, chick ciliary ganglion 283
Ciliary ganglion neurons, chick
  chemosensitivity 289, 297
  development 283
  ionic channels 299, 308
Ciliary neurotrophic factor 288, 298
Cognition, role of 5-HT 367–376
  interaction between serotonergic and cholinergic systems 373
Complex cell, orientation specificity 388
  models 403
Compound action potentials, remyelinated axons 124
Conduction, in myelinated axons 121
ω-Conotoxin, effect on proton-induced current 80
Cortical inhibition, models of orientation specificity 394, 401
Corticosteroid binding globulin 6
Corticosteroids, biosynthesis and synthetic analogs 2
  cellular effects 8, 23
    delayed actions 12, 24
    immediate actions 11
  ion conductances 12
  metabolic effects 21
  morphology 22
  pathological conditions 27
  receptors 3
  regulation of electrical activity 25
  transmitter systems 15
Corticotropin releasing hormone, effect of corticosteroids 21
Cutaneous vasoconstrictor-type neurons, respiratory modulation 581, 587
Cyclosporin A, nerve allografts 198, 216, 219, 225
Cytokines, brain inflammation 153, 158
Cytoskeleton, synapsin binding 515

D-600, effect on proton-induced current 79
Dementia, 5-HT and cognition 363
Demyelinating disease 143
  animal models 148
  brain inflammation
    blood–brain barrier 151
    consequences 153
  immunity and the nervous system 151
  microglia, demyelination and oligodendrocyte injury 161
  multiple sclerosis 144
  T-lymphocyte 162
  treatment 167

Demyelination
  myelin sheath remodelling in remyelinated nerves 121
  physiological consequences 123
Development
  amphibian sympathetic ganglia 450
  ascorbate in brain 540
  chick ciliary ganglion neurons 283
    regulation of chemosensitivity 297
    regulation of ionic currents 308
  corticosteroid receptors in brain 7, 9
  expression of proton-gated channels 81
  motor innervation of muscle spindles 355
  myelin sheath remodelling
    normal 97, 129, 134
    pathological 114
  orientation specificity 404
Dexamethasone 3
Diabetes, blood–nerve barrier permeability 264
Diacylglycerol, muscarinic excitation in amphibian sympathetic ganglia 484, 486, 497
Difference of Gaussian(DOG) functions 392
Diltiazem, effect on proton-induced current 79
Dopamine, in brain
  ascorbate interactions 544, 547, 551
    clinical implications 552, 554
  effect of corticosteroids 18
Dopamine–glutamate–ascorbate interactions 551
Double myelination 107

Embryo, chick, development of ciliary ganglion 281–322
Endoneurial blood vessels 238
  aging 271
  transport properties 258, 264
Endoneurium, calcium regulation 254
Energy metabolism in brain 37
  ATP pathways 54
    mitochondrial 52
  enzymes of the glycolytic pathway 48
  glucose delivery 46
  effect of hypoglycemia and hypoxia/ischemia 45, 61
  interactions with ions 49, 56
  effect of seizures and spreading depression 44, 56
Epiperineurial sheath
  morphology 237
  quantitation of blood–nerve barrier permeability and transport 242
EPSP
  late-slow, amphibian sympathetic ganglia 488, 498
  slow, amphibian sympathetic ganglia 482, 498
N-Ethylmaleimide sensitive factor 530
Excitatory amino acid receptors, effect of corticosteroids 15
Exercise, respiratory modulation in sympathetic activity 599
Exocytosis, role of vesicle proteins 511–536
Experimental allergic encephalomyelitis 148, 151
Eye, development of chick ciliary ganglion 283

Fatty acids
  effect on channel proteins 179
  effect on membrane fluidity 178
Fibroblast growth factors, ciliary neuron survival 289
Freeze-thawing, nerve allografts 212

Frog, sympathetic ganglia 439–510
Fusimotor (γ) axons 325, 330, 337, 342, 344, 350, 352, 355

GABA
  effect on ascorbate release 544, 546
  glucocorticoid action on responses to 11, 17
GABA receptors, chick ciliary ganglion 296, 299
Galactosemia, blood–nerve barrier permeability 264
Genes, multiple sclerosis 144
Glia
  interaction with microglia/macrophages 162
  ion concentrations 39
    effect of increased activity and hypoxia/ischemia 42
Glial cell lineages 154
Glycocorticoid receptor, in brain 24
  aging 8
  binding characteristics and localization 5
  ionic conductances 12
  ontogeny 7, 9
  regulation 6
  specificity conferring mechanisms 6
  stress and toxic insults, drug treatment 8
  structure 3
  transmitter systems 15
Glucose
  delivery to brain 46
  transport at blood–nerve barrier 258
  utilization in brain, effect of seizures 58
Glutamate
  ascorbate interactions 542, 549, 551
    clinical implications 555
  blood–nerve barrier transport 262
  dopamine interactions 551
  neurotoxicity, effect of ascorbate 555
Glutamate receptors, in brain, effect of corticosteroids 15
Glycogenolysis, in brain, effect of seizures 57
Glycolytic pathway enzymes, in brain 48
G proteins
  muscarinic excitation in amphibian sympathetic ganglia 483, 484, 497
  protein secretion
    mammalian 527
    RAB3A 527
    yeast secretory mutants 526
Growth promoting activity, chick eye 288
Guanosine diphosphate dissociation inhibitor 528
Guanosine triphosphatase activating protein 528

H^+, in brain 39
  changes during increased activity, hypoglycemia and hypoxia/ischemia 40
Haloperidol, ascorbate interaction 553
Heart, modulation of ion channels by arachidonic acid 183
Heart rate, respiratory modulation 570
Heparin binding growth factors, ciliary ganglion neuron survival 289
Hexokinase, in brain
  interaction with ions 49, 61
  effect of hypoglycemia and hypoxia/ischemia 61
  effect of seizures 58
High voltage spindle 367
HLA system, multiple sclerosis 147
Hydraulic conductivity, blood–nerve barrier 251

5-Hydroxyindoleacetic acid, in brain, aging 374
11β-Hydroxysteroid dehydrogenase, in brain 6
5-Hydroxytryptamine
  aging 374
  effect on amphibian sympathetic ganglia 495
  in brain, effect of corticosteroids 19
  innervation in brain 364
  physiological effects in brain 365
  role in cognition
    attention 368, 372
    cortical arousal 367
    memory 370, 372
5-Hydroxytryptamine neurons, physiology 365
5-Hydroxytryptamine receptors, in brain 365
  role in cerebral activation 368, 372
Hypercomplex property, orientation specificity 389
Hyperpolarization-activated Na^+-K^+ current, amphibian sympathetic ganglia 462, 465, 493
Hypoglycemia
  changes in ion concentrations in brain 40
  effect on energy parameters in brain 45, 46
  relations between ions and energy producing pathways 61
Hypoxia/ischemia
  changes in ion concentrations in brain 40
  effect on energy parameters in brain 45, 47
  relations between ions and energy producing pathways 61

Immune function, multiple sclerosis 144, 151
Immunobiology of nerve allografts 197
Immunosuppression
  multiple sclerosis 167
  nerve allografts 215
Inferior alveolar nerve, myelin sheath remodelling during aging 108
Inferotemporal cortex, orientation specific cells 423
Inflammatory demyelination 143
  animal models 148
  blood–brain barrier 151
  consequences of brain inflammation 153
  microglia 161
  oligodendrocyte injury 154, 161
  T-lymphocytes 162
  treatment 167
Inhibitory amino acid receptors, effect of corticosteroids 16
Intrafusal motor axons 325, 327
Intrafusal motor endings, classification 343
Intrafusal muscle fibres 325
  formation during development 355
Ion channels
  chick ciliary ganglion 299
  modulation by arachidonic acid 175–186
Ionic currents
  amphibian sympathetic ganglia 453
  effect of corticosteroids 12
Ions, in brain 37
  during increased activity, hypoglycemia and hypoxia/ischemia 39, 56
  interaction with energy production pathways 49, 56
  resting conditions 38
Ion selectivity, proton-gated channel 75
IPSP, slow, amphibian sympathetic ganglia 488, 498

Irradiation, nerve allografts 209
Ischaemia
  effect on energy parameters in brain 45, 47
  ion changes in brain 40
  relations between ions and energy producing pathways 61

Kappa-neurotoxins 293, 294

Lambert–Eaton myasthenic syndrome 519
Laminin, nerve allografts 227
Large dense-core vesicles, exocytosis 512
Lateral geniculate nucleus, orientation specificity 387, 419
  models 391, 403
α-Latrotoxin receptor, synaptotagmin binding 519
Learning, interactions between serotonergic and cholinergic systems 373
Leucine, transport at blood–nerve barrier 260
Lipocortin 525
Long-term potentiation, synapsin 517
Luteinizing hormone releasing hormone, in amphibian sympathetic ganglia 447, 490, 492, 496, 499
Lymphocytes
  endothelial cell interactions, blood–brain barrier 152
  inflammatory demyelinating disease 162, 167
Lymphotoxin 158
Lyophilization, nerve allografts 209

Macrophages, inflammatory demyelination 161, 162
Magnesium, in brain 44
  interaction with energy production pathways 49
Major histocompatability complex
  multiple sclerosis 144, 147
  nerve allografts 197, 200, 205, 222
Manganese, transport at blood–nerve barrier 262
Marchi-positive granules, 97, 106, 107
M channels, effect of arachidonic acid 176, 182
M-current, amphibian sympathetic ganglia 456, 487, 494, 498
Medulla oblongata, respiratory–sympathetic coupling 592
Membrane fluidity, effect of arachidonic acid 178
Memory
  effect of 5-HT depletion 370
  interaction between serotonergic and cholinergic systems 373
N-Methyl-D-aspartate receptor
  effect of arachidonic acid 176, 183
  ascorbate interaction 543, 550, 555
  effect of corticosteroids 15
Methysergide, effect on cognition 372, 374
Microglia, demyelination and oligodendrocyte injury 161, 162
Middle temporal area, orientation specific cells 423
Mineralocorticoid receptor, in brain 24
  aging 8
  binding characteristics and localization 5
  ionic conductances 12
  ontogeny 7, 9
  regulation 6
  specificity conferring mechanisms 6
  stress and toxic insults, drug treatment 8
  structure 3
  transmitter systems 15

Monoclonal antibodies, nicotinic receptors in chick ciliary ganglion 294
Motility-regulating neurones, respiratory modulation 582
Motor axons, intrafusal 325, 327
Motor endings, classification 343
Motor innervation, mammalian muscle spindles 326–355
Multiple sclerosis
  blood–brain barrier 151
  histopathology, immune abnormalities and genes 144
  T-lymphocytes 162
  treatment 167
Muscarinic excitation, amphibian sympathetic ganglia 482, 498
Muscarinic inhibition, amphibian sympathetic ganglia 488, 498
Muscarinic receptors, brain 366
Muscle
  respiratory fluctuations of vascular resistance 570
  respiratory modulation of sympathetic activity in humans 587
Muscle spindles
  motor innervation 326
    development 355
    intrafusal distribution of motor axons 327
    intrafusal motor endings and neuromuscular junction 343
    number of motor axonal branches 349
  structure and function 324–326
Muscle vasoconstrictor-type neurons, respiratory modulation 577, 586, 587
Myelin, demyelinating disease in man 143–173
Myelination, PNS nerve fibres 85
  development 97
  double 107
  radial and longitudinal growth 89
Myelin sheath remodelling
  normal nerve fibres 85
    adult autonomic ganglia 107
    aging nerves 107, 133
    conduction 121
    development 97, 129
    longitudinal growth of myelin 89
    radial growth of myelin 89
    turnover related 107
  pathological nerves 111
    development 114
    physiological properties 122
    regenerated nerves 111, 126
    remyelinated nerves 121

Nasal vasomotor oscillations 571
Natriuretic factor, effects in amphibian sympathetic ganglion 496
Neocortex, orientation specificity 417, 419
Nerve allografts 189, 192
  graft ensheathment 215
  graft pretreatment 207
  host immunosuppression 215
  immunobiology 197
  regeneration 196
Nerve autografts 189
Nerve growth factor, trophic factor in amphibian sympathetic ganglia 479
Nerve injury 188
Nerve xenografts 189–191
Neural development, models of orientation specificity 404
Neural development, models of orientation specificity 404
Neurexins 519
Neurite outgrowth, ciliary ganglion neurons 284
Neurodegeneration, protective effect of ascorbate 554
Neuroma 188
Neuromuscular junction, structure 343
Neuronal activity, changes in ion concentration 39
Neurons
  chick ciliary ganglion
    chemosensitivity 289, 297
    development 283
    ionic channels 299, 308
  ion concentrations 39
    effect of increased activity and hypoxia/ischemia 42
Neuropeptide Y
  amphibian sympathetic ganglia 447, 497, 499
  in brain, effect of corticosteroids 21
Neurotransmitters, vesicle proteins in release of 512
Neurotrophic factors, ciliary ganglia survival 288
Nicotonic receptors
  in brain 366
  in chick ciliary ganglion neurons
    biophysical properties 295
    molecular biology 294
    pharmacology 293
    regulation during embryonic development 297
Nicotinic transmission, amphibian sympathetic ganglia 481
Nigro-thalamo-cortico-neostriato-nigral loop, ascorbate release 545
Noradrenaline, in brain, effect of corticosteroids 17

Oligodendrocytes
  demyelinating disease 143, 151, 154
  tumor necrosis factor α induced injury 158
Opiate peptides, effect on cell survival 288
Orientation specificity in neurona
  C cell 388, 403, 421
  distribution in mammals 417
  hypercomplex property 389
  models
    neural connections 390
    neural development 404
  receptive field 382
  S cell 386, 390, 400, 421
  synaptic processes 426
Oscillators, entrainment 594
Oxidative stress, effect of ascorbate 554
Oxygen radicals 181

Parasympathetic neurons, avian ciliary ganglion, functional development 281–322
Parkinson's disease, role of ascorbate 554
Peptidergic excitation, amphibian sympathetic ganglia 488
Peptides
  effect on amphibian sympathetic ganglia 495, 499
  in brain, effect of corticosteroids 21
Perceptron, orientation specificity 406
Performin, oligodendrocyte injury 158

Peripheral nerve allograft 187–233
graft ensheathment 215
graft pretreatment 207
host immunosuppression 215
immunobiology 197
regeneration 196
pH, neuronal cells 73, 75
Phagocyte–myelin interactions 161, 162
Phenylalanine, transport at blood–nerve barrier 260
Phosphofructokinase, in brain 50
interaction with ions 61
effect of hypoglycemia and hypoxia/ischemia 61
effect of seizures 58
Phospholipase C, mediation of arachidonic acid effects on ion channels 180
Phospholipids, synaptotagmin binding 520
Physophilin 522
Pilomotor neurons, respiratory modulation 583
Posterior parietal cortex, orientation specific cells 423
Postero-medial suprasylvian area, orientation specific cells 425
Potassium
blood–nerve barrier permeability 253
in brain 38
changes during increased activity, hypoglycemia and hypoxia/ischemia 40
interaction with energy production pathways 49, 56
Potassium channels
effect of arachidonic acid 176, 183
effect of arachidonic acid metabolites 179
in chick ciliary ganglion 302, 305, 310
myelin sheath remodelling 124, 126, 135
Potassium current
amphibian sympathetic ganglia
agonist-sensitive inwardly-rectifying 464, 466, 488, 491
Ca^{2+}-sensitive 459, 460, 478
delayed rectifier 453
effect of corticosteroids 12
Protein kinase C, mediation of arachidonic effects on ion channels 180
Proton-induced current, neuronal cells 74
effect of divalent cations 76
expression of 80
functions 81
ionic selectivity 75
kinetics 76
origin 81
pH_o dependency 75
pharmacological properties 78
Pupil, respiratory fluctuations 571
Pyruvate kinase, in brain
interaction with ions 51, 61
effect of hypoglycemia and hypoxia/ischemia 61
effect of seizures 58

Rab3A
function 528
localization 527
structure 527
Rat, respiratory modulation of sympathetic activity 584
Receptive field, orientation specificity 382
complex cell 388
distribution of specific cells in mammals 417
hypercomplex property 389
simple cell 386
Reflex component, respiratory modulation of sympathetic activity 572, 577, 589
Regenerating nerve
blood–nerve barrier permeability 266
myelin sheath remodelling 111
physiological abnormalities 126
Rejection, nerve allografts 199
Remyelination
multiple sclerosis 144, 167
myelin sheath remodelling 121
physiology of nerves 122
Respiration, brain, effect of seizures 59
Respiratory modulation of sympathetic activity 567–606
anaesthetized cats, dogs, rabbits and piglets 571
humans 587
location of respiratory–sympathetic coupling 592
model 597
physiological role 598
rats 584
reflex responsiveness 589
Respiratory oscillations
cardiovascular system 569
lower airway muscle tone 571
pupil 571
Respiratory sinus arrhythmia 569
Resting potential, amphibian sympathetic ganglia 476
Retina, orientation specificity 418
Rhythmicity, respiratory, autonomic neurons 594
Ritanserin, effect on cognition 372
Rostral ventrolateral medulla, respiratory–sympathetic coupling 592
RU 26752 3
RU 28318 3
RU 28362 3
RU 38486 3, 11

SCAMPs 530
Schizophrenia, role of ascorbate 552
Schwann cells
immunobiology of nerve allografts 205
myelin sheath remodelling 86–135
Scorpion toxin, effect on proton-induced current 79
*Sec*4 protein 526
Secretory vesicle proteins, role in exocytosis 511–536
Seizures
effect on energy parameters in brain 44
ions and energy parameter interactions 56
Sensory innervation, mammalian muscle spindle 324
Serotonergic drugs, effect on attention and memory 372
Serotonergic neurotoxins 367
Serotonergic system, brain
aging 374
anatomy 364
interaction with cholinergic system 366, 373
manipulation of and cognition 367
physiology 365
Shunting inhibition, orientation specificity 427
SIF cells
amphibian sympathetic ganglia 449
mammalian sympathetic ganglia 451

Simple cell, orientation specificity 386
  models 390
Skeletofusimotor (β) axons 325, 335, 344, 350, 354
Skin sympathetic activity, respiratory modulation 588
Slow-A current, amphibian sympathetic ganglia 462, 463, 464
SNAPs 530
SNAREs 531
Sodium
  blood–nerve barrier permeability 253
  in brain 38
    changes during increased activity, hypoglycemia and hypoxia/ischemia 40
    interaction with energy producing pathways 56
  effect on proton-induced current 75, 78
Sodium channels
  effect of arachidonic acid 176
  in chick ciliary ganglion 299, 308
  toxins affecting 78
Sodium currents, amphibian sympathetic ganglia 468, 469, 479
Sodium pump, amphibian sympathetic ganglia 494
Somatostatin, effects in amphibian sympathetic ganglia 497
Spironolactone 3
Spontaneously hypertensive rats, respiratory pattern of sympathetic activity 585
Spreading depression
  effect on energy parameters in brain 44
  ion changes in brain 40
relationship between ions and energy production 61
Stress
  corticosteroid receptors in brain 7, 8
  5-HT system and corticosteroids 20
Stretch stimuli, muscle spindles 324
Striate cortex, orientation specificity 419
Substance P
  effect on amphibian sympathetic ganglia 496
  synaptic transmission in chick ciliary ganglion 290
Sudomotor neurons, respiratory modulation 582
Superior cervical ganglion
  double myelination 107
  organization and anatomy 451
SV 2 530
SVAPP-120 530
Sympathetic ganglia, amphibian
  adrenaline effects 493
  cellular physiology 453
  comparison with mammalian ganglia 450
  monoamine effects 495
  muscarinic excitation (slow EPSP) 482
  muscarinic inhibition (slow LPSP) 488
  nicotinic transmission 481
  organization and anatomy 441
  peptide effects 495, 499
  peptidergic excitation (late-slow EPSP) 490
Sympathetic neurones, respiratory modulation of activity 567–606
  anaesthetized cats, dogs, rabbits and piglets 571
  humans 587
  location of respiratory–sympathetic coupling 592
  model 597
  physiological role 598
  rats 584
  reflex responsiveness 589
Synapses, formation in avian ciliary ganglia 284
Synapsins
  binding to synaptic vesicles and cytoskeleton 515
  function 516
  localization 514
  phosphorylation 515
  structure 514
Synaptic processes and orientation specificity 426
Synaptic transmission, chick ciliary ganglia 290
Synaptic vesicle proteins, role in exocytosis 511–536
Synaptic vesicles
  docking and fusion 517
  synapsins 514
  synaptophysin in biogenesis 523
  translocation 514
Synaptobrevin 529
Synaptophysin
  formation of a channel or pore 523
  function 524
  interaction with protein on presynaptic membrane 522
  involvement with synaptic vesicle biogenesis 523
  localization 521
  phosphorylation 522
  structure 521
Synaptotagmin
  binding to calcium 520
  binding to phospholipids 520
  binding to proteins on presynaptic membrane 519
  function 520
  localization 519
  structure 518
Synexin 525
Syntaxins, synaptotagmin binding 519

Tectum, orientation specificity 418
Temperature, autonomic–respiratory coordination 599
Tetrodotoxin, effect on proton-induced current 78
Thoracic preganglionic neurones, respiratory modulation in activity 575
T-lymphocytes, inflammatory demyelinating disease 162, 167
Toxin F, effect on chick ciliary ganglion neurons 293
Tracheal muscle, respiratory oscillations 571
Transferrin receptors 523
Traube–Herring blood pressure waves 568, 570
Tumor necrosis factor-α, oligodendrocyte-myelin injury 158, 162

Vascular resistance, respiratory fluctuations 570
Vasointestinal polypeptide, in brain, effect on corticosteroids 21
Vesicle proteins, role in exocytosis 511–536
Visual cortex, orientation specificity, development 405
Visual experience, orientation specificity 405

Wallerian degeneration, blood–nerve barrier permeability 266
Water, blood–nerve barrier permeability 251

LIST OF PREVIOUS REVIEW ARTICLES

VOLUME 30

D. R. NÄSSEL	Serotonin and serotonin-immunoreactive neurons in the nervous system of insects
R. W. DYKES, P. LANDRY, T. P. HICKS, P. DIADORI and R. METHERATE	Specificity of connections in the ventroposterior nuclei of the thalamus
J. C. VENTER, U. DI PORZIO, D. A. ROBINSON, S. M. SHREEVE, J. LAI, A. R. KERLAVAGE, S. P. FRACEK JR, K.-U. LENTES and C. M. FRASER	Evolution of neurotransmitter receptor systems
B. GORDON, E. E. ALLEN and P. Q. TROMBLEY	The role of norepinephrine in plasticity of visual cortex
C. BELL	Dopamine release from sympathetic nerve terminals
M. ANNIKO, L.-E. THORNELL and R. WROBLEWSKI	Recent advances in inner ear cytochemistry—microanalytical and immunomorphological investigations
K. T. WANN and A. G. MACDONALD	Actions and interactions of high pressure and general anaesthetics
A. J. MCCOMAS, G. PRESTWICK and S. GARNER	The sick motoneurone hypothesis of muscular dystrophy
T. W. STONE and N. R. BURTON	NMDA receptors and ligands in the vertebrate CNS
E. HANSSON	Astroglia from defined brain regions as studied with primary cultures
H. SHINOZAKI	Pharmacology of the glutamate receptor
D. G. STUART, T. M. HAMM and S. VANDEN NOVEN	Partitioning of monosynaptic Ia EPSP connections with motoneurons according to neuromuscular topography: Generality and functional implications
C. D. MCCAIG	Nerve guidance: A role for bio-electric fields?
L. B. HOUGH	Cellular localization and possible functions for brain histamine: Recent progress
D. N. COOPER and C. HALL	Down's syndrome and the molecular biology of chromosome 21

VOLUME 31

K. H. REID, H. L. EDMONDS JR, A. SCHURR, M. T. TSENG and C. A. WEST	Pitfalls in the use of brain slices
N. A. SHAW	The auditory evoked potential in the rat—a review
W. LASKEY and C. POLOSA	Characteristics of the sympathetic preganglionic neuron and its synaptic input
M. DRAGUNOW	Purinergic mechanisms in epilepsy
Y. LAMOUR and J. EPELBAUM	Interactions between cholinergic and peptidergic systems in the cerebral cortex and hippocampus
T. NOGUCHI	Brain development in dwarf mice
D. G. JONES	Influence of ethanol on neuronal and synaptic maturation in the central nervous system—morphological investigations
J. P. FRAHER, G. F. KAAR, D. C. BRISTOL and J. P. ROSSITER	Development of vertical spinal motoneurone fibres: A correlative study of the growth and maturation of central and peripheral segments of large and small fibre classes
J. B. ULMER	The phosphorylation of myelin proteins
A. SIEGEL and C. B. POTT	Neural substrates of aggression and flight in the cat
H. SPITZER and S. HOCHSTEIN	Complex-cell receptive field models
Z. RAKONCZAY	Cholinesterase and its molecular forms in pathological states
J. M. PROVIS and P. L. PENFOLD	Cell death and the elimination of retinal axons during development
P. POLC	Electrophysiology of benzodiazepine receptor ligands: Multiple mechanisms and sites of action
C. R. GARDNER	Functional *in vivo* correlates of the benzodiazepine agonist-inverse agonist continuum
G. BERNROIDER	Cell-patterning during sexual neurogenesis
J. WICKENS	Electrically coupled but chemically isolated synapses: Dendritic spines and calcium in a rule for synaptic modification

VOLUME 32

H. PARNAS and L. A. SEGEL	Facilitation as a tool to study the entry of calcium and the mechanism of neurotransmitter release
T. L. TÖRÖK	Neurochemical transmission and the sodium-pump
A. SHOSAKU, Y. KAYAMA, I. SUMITOMO, M. SOGITANI and K. IWAMA	Analysis of recurrent inhibitory circuit in rat thalamus: Neurophysiology of the thalamic reticular nucleus
S. KOBAYASHI	Temperature-sensitive neurons in the hypothalamus: A new hypothesis that they act as thermostats, not as transducers
M. A. HOFMAN	On the evolution and geometry of the brain in mammals
H. MEIRI, Z. BAUM and Y. ROSENTHAL	Dynamic changes in sodium channels at demyelinated axons
R. WINKLBAUER	Development of the lateral line system in *Xenopus*
B. L. FINLAY and S. L. PALLAS	Control of cell number in the developing mammalian visual system
B. KOLB and I. Q. WHISHAW	Plasticity in the neocortex: Mechanisms underlying recovery from early brain damage
H. MATTHIES	In search of cellular mechanisms of memory
H. L. BORISON	Area postrema: Chemoreceptor circumventricular organ of the medulla oblongata
A. KIDMAN	Neurochemical and cognitive aspects of anxiety disorders
W. R. KLEMM	Drug effects on active immobility responses: What they tell us about neurotransmitter systems and motor functions
J.-P. TOUTANT	Insect acetylcholinesterase: Catalytic properties, tissue distribution and molecular forms
B. H. CHOI	The effects of methylmercury on the developing brain
R. J. HUXTABLE	Taurine in the central nervous system and the mammalian actions of taurine

VOLUME 33

M. YEADON and I. KITCHEN	Opioids and respiration
R. MILLER	Schizophrenia as a progressive disorder: Relations to EEG, CT, neuropathological and other evidence
F. L. STRAND, K. J. ROSE, J. A. KING, A. C. SEGARRA and L. A. ZUCCARELLI	ACTH modulation of nerve development and regeneration
R. D. FIELDS, J. M. LE BEAU, F. M. LONGO and M. H. ELLISMAN	Nerve regeneration through artificial tubular implants
A. NIIJIMA	Nervous regulation of metabolism
G. B. STEFANO	Role of opioid neuropeptides in immunoregulation
M. P. WITTER, H. J. GROENEWEGEN, F. H. LOPES DA SILVA and A. H. M. LOHMAN	Functional organization of the extrinsic and intrinsic circuitry of the parahippocampal region
R. H. EVANS	The pharmacology of segmental transmission in the spinal cord
A. PROCHAZKA	Sensorimotor gain control: A basic strategy of motor systems?
W. WALZ	Role of glial cells in the regulation of the brain ion microenvironment
A. ISHIDA-YAMAMOTO and M. TOHYAMA	Calcitonin gene-related peptide in the nervous tissue
T. S. LORIG	Human EEG and odor response
N. BEN-JONATHAN, L. A. ARBOGAST and J. F. HYDE	Neuroendocrine regulation of prolactin release

VOLUME 34

C. IDE, T. OSAWA and K. TOHYAMA	Nerve regeneration through allogeneic nerve grafts, with special reference to the role of the Schwann cell basal lamina
J. K. S. JANSEN and T. FLADBY	The perinatal reorganization of the innervation of skeletal muscle in mammals
J. L. WINSLOW	Analysis and numerical solution of the dendrite equation with synapses applied to cochlear neurons
Y. STERN	MPTP-induced Parkinsonism
M. SATOU	Synaptic organization, local neuronal circuitry, and functional segregation of the teleost olfactory bulb

R. MILLER, J. R. WICKENS and R. J. BENINGER	Dopamine D-1 and D-2 receptors in relation to reward and performance: a case for the D-1 receptor as a primary site of therapeutic action of neuroleptic drugs
J. M. DEL CORRAL, A. MIRALLES, M. C. NICOLAU, B. PLANAS and R. V. RIAL	Stereotaxic atlas for the lizard *Gallotia galloti*
K. KUBA and E. KUMAMOTO	Long-term potentiations in vertebrate synapses: A variety of cascades with common subprocesses
P. J. HARRISON and R. C. A. PEARSON	*In situ* hybridization histochemistry and the study of gene expression in the human brain
A. S. FENG, J. C. HALL and D. M. GOOLER	Neural basis of sound pattern recognition in anurans
W. DICKEY and J. I. MORROW	Drug-induced neurological disorders
D. COTARIU, J. L. ZAIDMAN and S. EVANS	Neurophysiological and biochemical changes evoked by valproic acid in the central nervous system
C. SUMMERS, L. M. MYERS, C. J. KALBERG and M. K. RAIZADA	Physiological and pharmacological comparisons of angiotensin II receptors in neuronal and astrocyte glial cultures
A. S. HORN	Dopamine uptake: A review of progress in the last decade
M. CHESLER	The regulation and modulation of pH in the nervous system
S. ITOH and A. TAKASHIMA	Neuropharmacological profile of V-9-M, a putative neuropeptide derived from procholecystokinin
G. I. HATTON	Emerging concepts of structure–function dynamics in adult brain: The hypothalamo–neurohypophysial system
S. NAKAMURA and T. SAKAGUCHI	Development and plasticity of the locus coeruleus: A review of recent physiological and pharmacological experimentation

VOLUME 35

M. J. TITMUS and D. S. FABER	Axotomy-induced alterations in the electrophysiological characteristics of neurons
A. M. THOMSON	Glycine is a coagonist at the NMDA receptor/channel complex
D. HERPIN	The effects of antihypertensive drugs on the cerebral blood flow and its regulation
R. FESCE	Stochastic approaches to the study of synaptic function
U. WINDHORST	Activation of Renshaw cells
K. G. HENDERSON and B. LINDVALL	Polymyositis and dermatomyositis 1990—diagnosis, treatment and prognosis
H. BENFENISTE and P. C. HUTTEMEIER	Microdialysis—theory and application
C. S. BOYAN and E. E. BALL	Neuronal organization and information processing in the wind-sensitive cercal receptor/giant interneurone system of the locust and other orthopteroid insects
M. ERECIŃSKA and I. A. SILVER	Metabolism and role of glutamate in mammalian brain
R. N. ADAMS	*In vivo* electrochemical measurements in the CNS
R. GRIFFITHS	Cysteine sulphinate (CSA) as an excitatory amino acid transmitter candidate in the mammalian central nervous system
J. M. OLCESE	The neurobiology of magnetic field detection in rodents
M. KUMADA, N. TERUI and T. KUWAKI	Arterial baroreceptor reflex: Its central and peripheral neural mechanisms
A. J. COPP, F. A. BROOK, J. P. ESTIBEIRO, A. S. W. SHUM and D. L. COCKROFT	The embryonic development of mammalian neural tube defects
W. WESEMANN and N. WEINER	Circadian rhythm of serotonin binding in rat brain
K. EZURE	Synaptic connections between medullary respiratory neurons and considerations on the genesis of respiratory rhythm
R. ANWYL	Neurophysiological actions of 5-hydroxytryptamine in the vertebrate nervous system

VOLUME 36

G. M. JONAKAIT, L. NI, P. D. WALKER and R. P. HART	Development of substance P (SP)-containing cells in the central nervous system: Consequences of neurotransmitter co-localization
A. J. SILVER and J. E. MORLEY	Role of CCK in regulation of food intake
L. SIVILOTTI and A. NISTRI	GABA receptor mechanisms in the central nervous system

W. VAN DER KLOOT	The regulation of quantal size
L. P. RENAUD and C. W. BOURQUE	Neurophysiology and neuropharmacology of hypothalamic magnocellular neurons secreting vasopressin and oxytocin
H. J. LITTLE	Mechanisms that may underlie the behavioural effects of ethanol
G. C. PAPADOPOULOS and J. G. PARNAVELAS	Monoamine systems in the cerebral cortex: Evidence for anatomical specificity
D. A. POWELL, S. L. BUCHANAN and L. L. HERNANDEZ	Classical (Pavlovian) conditioning models of age-related changes in associative learning and their neurobiological substrates
R. MILLER and R. J. BENINGER	On the interpretation of asymmetries of posture and locomotion produced with dopamine agonists in animals with unilateral depletion of striatal dopamine
S. E. FREEMAN and R. M. DAWSON	Tacrine: A pharmacological review
C. C. KING	Fractal and chaotic dynamics in nervous systems
R. HAWKES and C. GRAVEL	The modular cerebellum
R. W. GREENE and H. L. HAAS	The electrophysiology of adenosine in the mammalian central nervous system
J. W. UNGER, J. N. LIVINGSTON and A. M. MOSS	Insulin receptors in the central nervous system: Localization, signalling mechanisms and functional aspects
B. WALMSLEY	Central synaptic transmission: Studies at the connection between primary afferent fibres and dorsal spinocerebellar tract (DSCT) neurones in Clarke's column of the spinal cord
W. DICKEY	The neuroleptic malignant syndrome
R. J. HARVEY and R. M. A. NAPPER	Quantitative studies on the mammalian cerebellum
N. FALKE	Modulation of oxytocin and vasopressin release at the level of neurohypophysis
R. H. SCOTT, H. A. PEARSON and A. C. DOLPHIN	Aspects of vertebrate neuronal voltage-activated calcium currents and their regulation

VOLUME 37

E. W. LOTHMAN, E. H. BERTRAM III and J. L. STRINGER	Functional anatomy of hippocampal seizures
R. MONTEAU and G. HILAIRE	Spinal respiratory motoneurons
E. S. VIZI and E. LABOS	Non-synaptic interactions at presynaptic level
M. B. DUTIA	The muscles and joints of the neck: Their specialisation and role in head movement
D. R. NÄSSEL	Neurotransmitters and neuromodulators in the insect visual system
R. J. MILLER	The control of neuronal Ca^{2+} homeostasis
S. KATO, K. NEGISHI, T. TERANISHI and S. ISHITA	The use of the carp retina in neurobiology: Its uniqueness and application for neural network analyses of the inner retina
M. L. LANNOO, L. ROSS, L. MALER and R. HAWKES	Development of the cerebellum and its extracellular Purkinje cell projection in teleost fishes as determined by Zebrin II immuno-cytochemistry
G. E. DUNCAN and W. E. STUMPF	Brain activity patterns: Assessment by high resolution autoradiographic imaging of radiolabeled 2-deoxyglucose and glucose uptake
S. HAMPSON	Generalization and specialization in artificial neural networks
J.-P. ROYET	Stereology: A method for analyzing images
N. J. WOOLF	Cholinergic systems in mammalian brain and spinal cord
D. E. OORSCHOT, D. A. PETERSON and D. G. JONES	Neurite growth from, and neuronal survival within, cultured explants of the nervous system: A critical review of morphometric and stereological methods, and suggestions for the future

VOLUME 38

P. LEGENDRE and D. A. POULAIN	Intrinsic mechanisms involved in the electrophysiological properties of the vasopressin-releasing neurons of the hypothalamus
M. SCUKA and J. W. MOZRZYMAS	Postsynaptic potentiation and desensitization at the vertebrate end-plate receptors
J. MASSION	Movement, posture and equilibrium: Interaction and coordination

S. BERNATH	Calcium-independent release of amino acid neurotransmitters: Fact or artifact?
N. OKADO, H. SAKO, S. HOMMA and K. ISHIKAWA	Development of serotoninergic system in the brain and spinal cord of the chick
Y. DUMONT, J.-C. MARTEL, A. FOURNIER, S. ST-PIERRE and R. QUIRION	Neuropeptide Y and neuropeptide Y receptor subtypes in brain and peripheral tissues
B. B. STANFIELD	The development of the corticospinal projection
M. INOUE and M. YOSHII	Modulation of ion channels by somatostatin and acetylcholine
M. HAYASHI	Ontogeny of some neuropeptides in the primate brain
J. P. FRAHER	The CNS–PNS transitional zone of the rat. Morphometric studies at cranial and spinal levels
T. TANAKA, S. TANAKA, T. FUJITA, K. TAKANO, H. FUKUDA, K. SAKO and Y. YONEMASU	Experimental complex partial seizures induced by a microinjection of kainic acid into limbic structures
E. JANKOWSKA	Interneuronal relay in spinal pathways from proprioceptors
M. D. MAJEWSKA	Neurosteroids: Endogenous bimodal modulators of the $GABA_A$ receptor mechanism of action and physiological significance
R.-D. TREEDE, R. A. MEYER, S. N. RAJA and J. N. CAMPBELL	Peripheral and central mechanisms of cutaneous hyperalgesia
R. S. COHEN and D. W. PFAFF	Ventromedial hypothalamic neurons in the mediation of long-lasting effects of estrogen on lordosis behavior
P. SARANSAARI and S. S. OJA	Release of GABA and taurine from brain slices
K. ANDÓ	Cerebrovascular innervation of small bats
M. WOLMAN	Patterns of spread of different demyelinating processes in the myelin sheath
Y. TAKAHASHI	Gene expression in cells of the central nervous system
L. A. MARCO and R. S. JOSHI	A ketamine-induced rat model of tardive dyskinesia
C. P. LEBEL and S. C. BONDY	Oxidative damage and cerebral aging
K. WICTORIN	Anatomy and connectivity of intrastriatal striatal transplants

VOLUME 39

I. FERRER, E. SORIANO, J. A. DEL RIO, S. ALCANTARA and C. AULADELL	Cell death and removal in the cerebral cortex during development
K. V. BAEV and Y. P. SHIMANSKY	Principles of organization of neural systems controlling automatic movements in animals
J. M. BARNES and J. M. HENLEY	Molecular characteristics of excitatory amino acid receptors
J. C. SZERB and R. F. BUTTERWORTH	Effect of ammonium ions on synaptic transmission in the mammalian central nervous system
J. W. MILLER	The role of mesencephalic and thalamic arousal systems in experimental seizures
E. SIMON, R. GERSTBERGER and D. A. GRAY	Central nervous angiotensin II responsiveness in birds
T. TSUMOTO	Long-term potentiation and long-term depression in the neocortex
Y. KURACHI, R. T. TUNG, H. ITO and T. NAKAJIMA	G protein activation of cardiac muscarinic K+ channels
J. R. BLACKBURN, J. G. PFAUS and A. G. PHILLIPS	Dopamine functions in appetitive and defensive behaviours
J. PUYMIRAT	Thyroid receptors in the rat brain
C. F. ZORUMSKI and L. L. THIO	Properties of vertebrate glutamate receptors: Calcium mobilization and desensitization
D. A. MCCORMICK	Neurotransmitter actions in the thalamus and cerebral cortex and their role in neuromodulation of thalamocortical activity
M. KOSSUT	Plasticity of the barrel cortex neurons
J. S. KING, S. L. CUMMINGS and G. A. BISHOP	Peptides in cerebellar circuits
T. GOTOW	The cytoplasmic structure of the axon terminal
G. A. BISHOP and C. W. KERR	The physiological effects of peptides and serotonin on purkinje cell activity
P. A. FUCHS	Ionic currents in cochlear hair cells

G. D. ROSEN, G. F. SHERMAN and A. M. GALABURDA — Biological substrates of anatomic asymmetry
P. T. FRANCIS, M. N. PANGALOS and D. M. BOWEN — Animal and drug modelling for Alzheimer synaptic pathology
G. VAN DEN BERGHE, F. BONTEMPS, M. F. VINCENT and F. VAN DEN BERGH — The purine nucleotide cycle and its molecular defects
J. DEFELIPE and I. FARINAS — The pyramidal neuron of the cerebral cortex: Morphological and chemical characteristics of the synaptic inputs
K. FUKUSHIMA, C. R. S. KANEKO and A. F. FUCHS — The neuronal substrate of integration in the oculomotor system

VOLUME 40

C. R. GARDNER, W. R. TULLY and C. J. R. HEDGECOCK — The rapidly expanding range of neuronal benzodiazepine receptor ligands
C. BUISSERET-DELMAS and P. ANGAUT — The cerebellar olivo-corticonuclear connections in the rat
H. MEIRI, E. BANIN, M. ROLL and A. ROUSSEAU — Toxic effects of aluminium on nerve cells and synaptic transmission
P. I. PAKHOTIN, I. D. PAKHOTINA and A. B. BELOUSOV — The study of brain slices from hibernating mammals *in vitro* and some approaches to the analysis of hibernation problems *in vivo*
A NEHLIG and A. PEREIRA DE VASCONCELOS — Glucose and ketone body utilization by the brain of neonatal rats
B. B. RUZICKA and K. H. JHAMANDAS — Excitatory amino acid action on the release of brain neurotransmitters and neuromodulations: Biochemical studies
R. LENT and S. L. SCHMIDT — The ontogenesis of the forebrain commissures and the determination of brain asymmetrics
G. G. HADDAD and C. JIANG — O_2 deprivation in the central nervous system: On mechanisms of neuronal response, differential sensitivity and injury
C. HILDEBRAND, S. REMAHL, H. PERSSON and C. BJARIMAR — Myelinated nerve fibres in the CNS
M. TAKATA — Two types of inhibitory postsynaptic potentials in the hypoglossal motoneurons
E. J. WARRANT and P. D. MCINTYRE — Arthropod eye design and the physical limits to spatial resolving power
G. NISTICÒ — Communications among central nervous system, neuroendocrine and immune systems: Interleukin-2
E. HÖSLI and L. HÖSLI — Receptors for neurotransmitters on astrocytes in the mammalian central nervous system
J. S. HONG, J. F. MCGINTYL, P. H. K. LEE, C. W. XIE and C. L. MITCHELL — Relationship between hippocampal opioid peptides and seizures
S. MIHARA — Intracellular recordings from neurons of the submucous plexus
M. H. WHITNALL — Regulation of the hypothalamic corticotropin-releasing hormone neurosecretory system
T. A. LOVICK — Integrated activity of cardiovascular and pain regulatory systems: Role in adaptive behavioural responses
H. HARA, T. SUKAMOTO and K. KOGURE — Mechanism and pathogenesis of ischemia-induced neuronal damage
N. LINDEFORS, A. LINDÉN, S. BRENÉ, G. SENDVALL and H. PERSSON — CCK peptides and mRNA in the human brain
A. PERTOVAARA — Antinuciception induced by alpha-2-adrenoceptor agonists, with special emphasis on medefomidine studies
I. MERCHENTHALER, F. J. LÓPEZ and A. NEGRO-VILAR — Anatomy and physiology of central galanin-containing pathways

VOLUME 41

P. BALABAN — Behavioural neurobiology of learning in terrestrial snails
M. TAKANO and A. NOMA — The ATP-sensitive K^+ channel
J. MASSOULIE, L. PEZZEMENTI, S. BON, E. KREJCI and F.-M. VALLETTES — Molecular and cellular biology of cholinesterases
R. NAVARRETE and G. VRBOVA — Activity-dependent interactions between motoneurons and muscles: Their role in the development of the motor unit

M. W. SALTER, Y. DE KONINCK and J. L. HENRY	Physiological roles for adenosine and ATP in synaptic transmission in the spinal dorsal horn
B. H. BLAND and L. V. COLOM	Extrinsic and intrinsic properties underlying oscillation and synchrony in limbic cortex
J. D. COOPER and O. T. PHILLIPSON	Central neuroanatomical organisation of the rat visuomotor system
C. H. HORNER	Plasticity of the dendritic spine
H. M. SINNAMON	Preoptic and hypothalamic neurons and the initiation of locomotion in the anesthetized rat
L. AITKIN and V. PARK	Audition and the auditory pathway of a vocal new world primate, the common marmoset
R. E. DUSTMAN, D. E. SHEARER and R. Y. EMMERSON	EEG and event-related potentials in normal aging
B. J. DENNIS and S. T. MELLER	Investigations on the periaqueductal gray (PAG) of the rabbit: With consideration of experimental procedures and functional roles of the PAG
G. R. BARNES	Visual–vestibular interaction in the control of head and eye movement: The role of visual feedback and predictive mechanisms
L. H. LAZARUS and M. ATTILA	The toad, ugly and venomous, wears yet a precious jewel in his skin
R. L. PAPKE	The kinetic properties of neuronal nicotinic receptors: Genetic basis of functional diversity
M. S. ALDRICH	The neurobiology of narcolepsy–cataplexy
K. TOYAMA, Y. KOMATSU, N. YAMAMOTO and T. KUROTANI	*In vitro* studies of visual cortical development and plasticity
C. A. PORRO and M. CAVAZZUTI	Spatial and temporal aspects of spinal cord and brainstem activation in the formalin pain model
A. J. TODD and R. C. SPIKE	The localization of classical transmitters and neuropeptides within neurons in laminae I–III of the mammalian spinal dorsal horn
V. REGHUNANDANAN, R. REGHUNANDANAN and P. I. SINGH	Neurotransmitters of the suprachiasmatic nucleus: Role in the regulation of circadian rhythms
G. S. BOYAN and E. E. BALL	The grasshopper, *Drosophila* and neuronal homology (advantages of the insect nervous system for the neuroscientist)
M. SENSENBRENNER	The neurotrophic activity of fibroblast growth factors
U. PROSKE, D. L. MORGAN and J. E. GREGORY	Thixotropy in skeletal muscle and in muscle spindles: A review
J. HERBERT	Peptides in the limbic system: Neurochemical codes for co-ordinated adaptive responses to behavioural and physiological demand

VOLUME 42

G. SPERK	Kainic acid seizures in the rat
A. DEPAULIS, M. VERGNES and C. MARESCAUX	Endogenous control of epilepsy: The nigral inhibitory system
K. KITAHAMA, T. MAEDA, R. M. DENNEY and M. JOUVET	Monoamine oxidase: Distribution in the cat brain studied by enzyme- and immunohistochemistry: Recent progress
J. BELL, S. BOLANOWSKI and M. H. HOLMES	The structure and function of pacinian corpuscles: A review
S. R. VINCENT	Nitric oxide; a radical neurotransmitter in the central nervous system
E. SCHERINI and G. BERNOCCHI	*Cis*DDP treatment and development of the rat cerebellum
R. A. L. DAMPNEY	The subretrofacial vasomotor nucleus: Anatomical, chemical and pharmacological properties and role in cardiovascular regulation
S. HAMPSON	Problem solving in artificial neural networks
GUEST EDITOR: R. W. DAVIES	Life and death in the nervous system (The Robertson Symposium)
E. HAFEN, B. DICKSON, D. BRUNNER and T. RAABE	Genetic dissection of signal transduction mediated by the sevenless receptor tyrosine kinase in *Drosophila*
F. HUANG, C. DAMBLY-CHAUDIÈRE and A. GHYSEN	Position-reading and the emergence of sense organ precursors in *Drosophila*
J. W. SENTRY, S. F. GOODWIN, C. D. MILLIGAN, A. DUNCANSON, M. YANG and K. KAISER	Reverse genetics of *Drosophila* brain structure and function

A. JOLIOT, I. LE ROUX, M. VOLOVITCH, E. BLOCH-GALLEGO and A. PROCHIANTZ	Neurotrophic activity of a homeobox peptide
H. JOCKUSCH, K. KAUPMANN, M. GRONEMEIER, M. SCHLEEF and R. KLOCKE	Exploring the mammalian neuromuscular system by analysis of mutations: Spinal muscular atrophy and mytonia
R. W. DAVIES, E. J. GALLAGHER and A. SAVIOZ	Reverse genetics of the mouse central nervous system: Targeted genetic analysis of neuropeptide function and reverse genetic screens for genes involved in human neurodegenerative disease
S. BLACKSHAW	Cellular and molecular approaches to neural repair in the medicinal leech
S. KORNEEV, S. BLACKSHAW and J. A. DAVIES	cDNA libraries from a few neural cells
G. DECHANT, A. RODRÍGUEZ-TÉBAR and Y.-A. BARDE	Neurotrophin receptors
R. SCHOEPFER, H. MONYER, B. SOMMER, W. WISDEN, R. SPRENGEL, T. KUNER, H. LOMELI, A. HERB, M. KÖHLER, N. BURNASHEV, W. GÜNTHER, P. RUPPERSBERG and P. SEEBURG	Molecular biology of glutamate receptors
U. LÖNNENDONKER	Use dependence of guanidinium toxins in frog myelinated nerve: Evidence for features of native voltage-gated sodium channels
M. D. BERRY, A. V. JUORIO and I A. PATERSON	The functional role of monoamine oxidases A and B in the mammalian central nervous system
T. G. SMART, X. XIE and B. J. KRISHEK	Modulation of inhibitory and excitatory amino acid receptor ion channels by zinc
J. W. PHILLIS	A "radical" view of cerebral ischemic injury
K. P. ABLE	Magnetic orientation and magnetoreception in birds
G. B. STEFANO, T. V. BILFINGER and G. L. FRICCHIONE	The immune-neuro-link and the macrophage: Postcardiotomy delirium, HIV-associated dementia and psychiatry
K. KAILA	Ionic basis of $GABA_A$, receptor channel function in the nervous system
M. VERHAGE, W. E. J. M. GHIJSEN and F. H. LOPES DA SILVA	Presynaptic plasticity: The regulation of Ca^{2+}-dependent transmitter release
S. M. THOMPSON	Modulation of inhibitory synaptic transmission in the hippocampus
J. R. ELLIOTT and A. A. ELLIOTT	The effects of alcohols and other surface-active compounds on neuronal sodium channels
K. ONODERA, A. YAMATODANI, T. WATANABE and H. WADA	Neuropharmacology of the histaminergic neuron system in the brain and its relationship with behavioral disorders
K. IKEDA, H. SUNOSE and T. TAKASAKA	Ion transport mechanisms in the outer hair cell of the mammalian cochlea
C. M. A. PENNARTZ, H. J. GROENEWEGEN and F. H. LOPES DA SILVA	The nucleus accumbens as a complex of functionally distinct neuronal ensembles: An integration of behavioural, electrophysiological and anatomical data